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ABSTRACT

Using the data from the High School and Beyond Transcript Survey for 1980 sophomores who graduated from high school by fall 1982, the course grade distributions are compared for the following major instruction program categories: English, mathematics, social sciences, physical sciences, life sciences, and foreign languages (academic courses); business, home economics, and trade and industry (vocational courses); visual and performing arts and personal and social development courses; and others. Grade distributions are contrasted by geographic region and are related to homework effort, test performance level, and other student characteristics. The results of the study are presented in table format. (DWH)

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Contact: William B. Fetters
(202)254-7361

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High School Course Grade Standards

The National Commission on Excellence in Education in its report A Nation at Risk[1] concluded that ". . . declines in educational performance are in large part a result of disturbing inadequacies in the way the educational process itself is conducted." Among the deficiencies found by the Commission were low expectations of students in terms of level of knowledge, abilities, and skills required for high school graduation. Low expectations can be conveyed to students in several ways, including easy grading standards, minimal homework requirements, and freedom to choose a high percentage of elective courses outside the basic academic areas. To counter recent trends, the Commission recommended that:

- grades be reliable indicators of student readiness for further study;
- high school students be assigned far more homework;
- high school graduation requirements be strengthened.[2]

This bulletin uses High School and Beyond (HS&B) Transcript Survey data for 1980 sophomores who graduated from high school by fall 1982.[3] The course grade distributions are compared for the 11 major instruction program categories that account for 90 percent of all credits earned.[4] Six of the instruction program categories compared are academic (English, mathematics, social sciences, physical sciences, life sciences, and foreign languages) and three are vocational (business, trade and industry, and home economics). The remaining two are visual and performing arts, and personal and social development. The grade distributions are contrasted by geographic region and are related to homework effort, test performance level, and other student characteristics.

[1] U.S. Department of Education, the National Commission on Excellence in Education, A Nation At Risk: The Imperative for Educational Reform, U. S. Government Printing Office, April 1983.

[2] At a minimum, the requirements for a diploma should include: 4 years of English, 3 years of mathematics, 3 years of science, 3 years of social studies, and one-half year of computer science. For the college-bound student, 2 years of foreign language in high school were strongly recommended.

[3] See technical note 1 for information about the Transcript Survey.

[4] See technical note 2 for course classification information.

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An underlying assumption of this bulletin is that vigorous grading reflects high standards and results in high achievements. While this may be true generally, there undoubtedly are many exceptions. For example, a higher average grade may be a consequence of better-than-average teaching and better-than-average achievement.

Personal and social development and visual and performing arts courses[5]

Substantially higher grades were given in visual and performing arts (V&PA), and personal and social development (P&SD) courses than in courses in any other instruction program category (table 1 and figure). The percentage of A's in these two areas was about 2.5 times the percentage of A's in mathematics courses (44 and 39 vs. 17 percent); and the percentage of D's and F's was only about one-third as great (8 and 10 vs. 26 percent).[6] V&PA and P&SD courses, which are nearly always electives, accounted for one-fifth of all high school credits earned (table 1). An earlier NCES publication shows that courses in these areas were popular with students in academic programs, as well as with those in vocational and general programs.[7]

Good grades in V&PA and P&SD courses could be achieved with little, if any, homework effort. Students who spent no time at all or less than one hour per week on homework received A's in 28 percent of the courses they took in these two areas (table 2).[8] A similar percent of A's was received in mathematics, English, and science by students who reported spending at least 5 hours per week on homework. The ability to score an "easy A" in V&PA and P&SD courses may help explain their popularity.

Success in these areas undoubtedly depends more on creative or interpersonal skills and less on cognitive skills than does success in academic areas. At each cognitive test performance level, however, the percentage of A's was much higher in these two areas than in academic areas.[9] For example, students who scored in the top quartile on cognitive tests got A's in 63 percent of their V&PA courses but in only 30 percent of their mathematics courses.

Academic instructional program areas

About 54 percent of all high school credits are earned in the following major academic areas: English (17 percent), mathematics (12 percent), social sciences (12 percent), physical and biological sciences (4 percent each), and foreign languages (5 percent).

The primary difference in the course grade distributions between the various academic program areas was that the distributions for foreign languages was skewed toward higher values than the distributions for the other five areas.[10]

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[5]See footnotes 3 and 4 to table 1 for identification of the instruction program subcategories.

[6]Group differences cited in the text are statistically significant at the .05 level on the basis of two-tailed t tests.

[7]See Two Years in High School: The Status of 1980 Sophomores in 1982, NCES 84-207, October 1984.

[8]See technical note 4 for information about the classification of students by level of homework effort.

[9]See technical note 5 for information about the classification of students by test performance level.

[10]This situation holds even after controlling for homework hours and cognitive test score level.

Table 1.--Estimated number of Carnegie units earned and estimated percentage distribution of course grades, by instruction program category: 1980 sophomores who graduated by fall 1982.

Instruction program category	Credits (Carnegie units) earned		Percentage distribution of course grades					
	Mean no.	Percent	Total	A	B	C	D	F
Total	21.0	100	100	24	32	27	14	3
English (letters)	3.6	17	100	17	33	31	17	3
Mathematics	2.5	12	100	17	28	30	21	5
Social sciences	2.6	12	100	19	30	30	18	3
Physical sciences	.9	4	100	19	32	30	16	3
Life sciences	.9	4	100	18	29	31	19	4
Foreign languages	1.0	5	100	27	32	25	13	3
Business[1]	1.7	8	100	21	33	28	14	3
Trade and industry[2]	.9	4	100	22	34	29	13	2
Home economics	.7	3	100	26	37	25	10	2
Visual and performing arts[3]	1.4	7	100	44	31	17	6	2
Personal and social development[4]	2.8	13	100	39	32	19	8	2
Other[5]	2.0	10	100	25	33	27	13	2

[1]Includes the subcategories business and management, business and office, and marketing and distribution.

[2]Includes the subcategories construction trades, mechanics and repairers, precision production, and transportation and material moving.

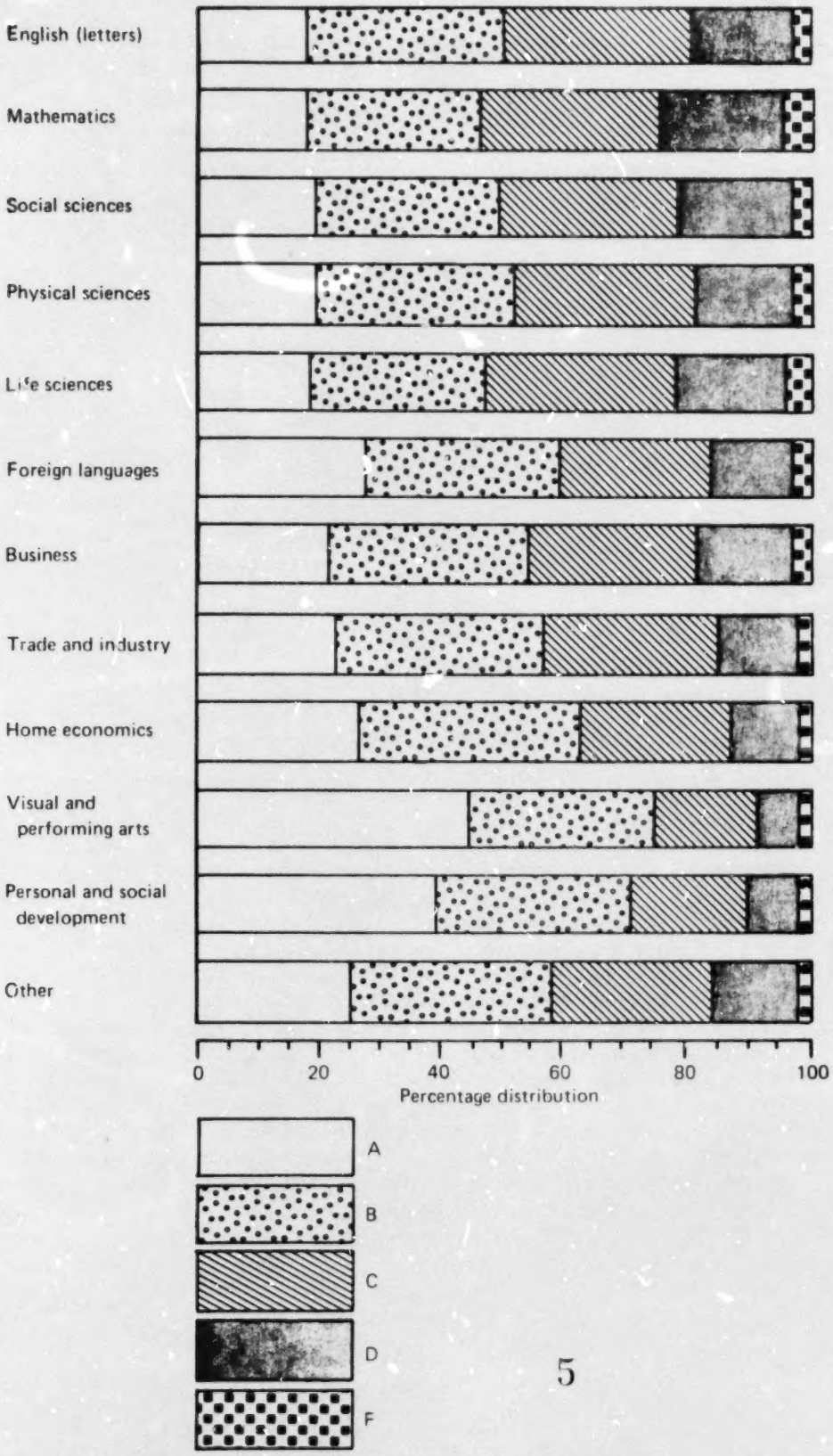
[3]Includes courses in crafts, dance, design, dramatic arts, film arts, fine arts, graphic arts technology, and music.

[4]Includes the following subcategories: basic skills, citizenship/civic activities, health-related activities, interpersonal skills, leisure and recreational activities, and personal awareness.

[5]Includes agriculture; architecture and environmental design; area and ethnic studies; communications; computer and information sciences; consumer, personal and miscellaneous services; education; engineering; health; industrial arts; law; liberal/general studies; library and archival sciences; military sciences; multi-interdisciplinary studies; parks and recreation; philosophy, religion and theology; psychology; public affairs and protective services; special vocational education programs; and exceptional student education.

NOTE.--Details may not add to totals because of rounding.

Course grade distributions by instruction program category



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About 27 percent of the foreign language grades were A's (vs. about 18 percent in the other areas) and only 16 percent were D's or F's (vs. 19 to 26 percent in the other areas). The highest percent of poor grades (D's and F's) was given in mathematics (26 percent).

As expected, students who reported doing little or no homework rarely received A's and often got D's or F's in academic instructional areas. For example, only 7 percent of English course grades for such students were A's and 36 percent were D's or F's. (In contrast, 28 percent of their grades in P&SD courses were A's and only 17 percent were D's or F's.)

Vocational instruction programs

About 15 percent of all high school credits were earned in three vocational areas: business (8 percent), trade and industry (4 percent), and home economics (3 percent). The course grade distributions in these vocational categories were slightly higher than in the academic categories, except for foreign languages. Twenty-one percent of the grades in business were A's, 22 percent in trade and industry, and 26 percent in home economics. In contrast, 17 percent of the grades for both English and mathematics courses were A's and about 42 percent for the average of V&PA and P&SD courses.

Geographic Region

Course grading standards appear to vary across the country (tables 2 and 3). The most rigorous standards seem to have been applied in the Middle Atlantic and South Atlantic States, where the percentage of A's was about equal to the percentage of D's and F's (about 21 vs. 20 percent).[11] On the other hand, at least twice as many A's as D's and F's were given to students in States in the Pacific (30 vs. 14 percent) and the West North Central (26 vs. 13 percent) regions.

The amount of variation among regions of the country in course grade distributions was greater for P&SD courses than other instructional areas. The percent of A's in these courses ranged from 29 percent in the Middle Atlantic States to 55 percent in the West South Central States.

Homework

Students who spent at least 5 hours per week on homework got A's in their courses 2.5 times as often as students who spent less than 1 hour per week (34 vs. 14 percent). This factor varies from over 4.0 in some academic instructional areas to 2.0 in V&PA and 1.8 in P&SD.

Cognitive test score level

Students in the top quartile of the HS&B test score distribution were 3.4 times as likely to get A's in their courses as students in the lowest quartile (41 vs. 12 percent). This factor varied, however, from 8.2 for social sciences to 2.4 for V&PA and 2.2 for P&SD.

[11] See technical note 3 for identification of States included in each geographical division.

Table 2.--Estimated percentage of A grades in high school courses, by instruction program category and selected student characteristics: 1980 sophomores who graduated by fall 1982.*

	All categories	English	Mathematics	Social sciences	Physical sciences	Life sciences	Foreign languages	Business	Trade & industry	Home economics	Visual & performing arts	Personal and social development	Other
All students	24	17	17	19	19	18	27	21	22	26	44	39	25
Geographic region:													
New England	23	15	16	16	20	18	28	20	20	23	37	40	25
Middle Atlantic	20	13	15	17	15	14	24	18	18	23	40	29	19
South Atlantic	22	15	14	16	17	15	25	21	20	23	44	37	25
East South Central	27	16	20	20	19	24	36	23	21	25	51	48	30
West South Central	29	17	18	20	20	18	30	24	22	30	52	55	31
East North Central	25	18	17	21	20	19	28	21	20	24	46	35	27
West North Central	26	21	20	20	20	22	29	23	22	26	44	35	26
Mountain	29	21	19	22	19	23	30	25	29	34	47	43	31
Pacific	30	21	19	21	22	20	30	26	28	34	44	46	30
Homework (hours per week):													
Less than 1	14	7	9	7	10	6	11	11	15	15	28	28	14
1 to 5	23	14	14	17	16	15	23	20	22	25	42	38	23
5 or more	34	27	25	31	27	28	35	32	35	39	55	49	37
Cognitive test performance group:													
Low	12	6	7	5	6	6	10	10	12	14	26	25	12
Middle	21	12	12	14	11	12	18	19	20	26	40	38	20
High	41	34	30	41	32	35	40	44	39	52	63	55	44
Sex:													
Male	22	12	15	16	18	15	21	17	21	17	38	40	22
Female	27	21	18	22	20	20	31	23	27	29	48	38	29
High school program:													
Academic	32	24	22	29	24	24	32	29	32	37	55	49	33
General	19	12	12	12	12	12	18	16	17	23	36	34	19
Vocational	17	9	9	10	9	9	14	18	19	20	33	30	18

*See technical notes and footnotes to table 1 for information about data sources, instruction program categories, student classification variables, and precision of estimates.

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Table 3.--Estimated percentage of D and F grades in high school courses, by instruction program category and selected student characteristics: 1980 high school sophomores who graduated by fall 1982. *

	All categories	English	Mathematics	Social sciences	Physical sciences	Life sciences	Foreign languages	Business	Trade & industry	Home economics	Visual & performing arts	Personal and social development	Other
All students	17	20	26	21	19	23	16	18	15	12	8	10	15
Geographic region:													
New England	14	15	21	16	15	17	11	14	12	9	5	10	12
Middle Atlantic	20	22	28	24	22	25	19	19	16	12	10	13	18
South Atlantic	20	22	29	24	22	26	17	20	15	18	9	10	17
East South Central	17	22	22	21	20	20	12	17	13	12	6	7	14
West South Central	17	22	27	21	22	25	18	18	14	12	8	7	12
East North Central	15	18	25	20	17	20	15	17	17	12	7	8	12
West North Central	13	15	19	18	12	16	12	12	13	9	6	7	13
Mountain	17	20	29	22	24	22	19	18	15	10	9	9	13
Pacific	14	16	23	18	15	20	12	15	14	12	8	8	11
Homework (hours per week):													
Less than 1	29	36	39	38	35	41	38	31	20	22	18	17	27
1 to 5	18	21	28	23	22	24	18	18	15	12	8	10	16
5 or more	9	9	16	10	12	13	10	10	7	6	4	5	8
Cognitive test performance group:													
Low	32	39	44	44	42	47	37	34	24	21	16	20	31
Middle	18	21	30	22	24	25	21	17	15	10	8	9	16
High	6	5	11	5	8	7	7	5	5	4	3	3	4
Sex:													
Male	20	25	28	24	21	26	21	22	16	21	11	10	17
Female	14	15	24	19	18	20	13	16	11	10	6	9	12
High school program:													
Academic	10	10	19	11	14	14	12	11	9	7	4	5	8
General	22	26	33	28	28	31	25	22	18	13	11	12	20
Vocational	24	30	34	33	30	34	28	20	16	16	11	13	21

*See technical notes and footnotes to table 1 for information about data sources, instruction program categories, student classification variables, and precision of estimates.

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Sex of student

Female students got higher grades than male students in almost all instructional categories, including mathematics and physical sciences. The one exception was in P&SD, where males had a slight advantage in percent of A's (40 vs. 38 percent). The advantage of females was especially great in English courses (21 vs. 12 percent A's) and foreign languages courses (31 vs. 21 percent A's). Males were 3.3 times as likely (40 vs. 12 percent) to have received A's in P&SD courses as in English courses. The corresponding factor for females was only 1.8 (38 vs. 21 percent).

High school program

Academic program students received higher grades than vocational or general program students in all instructional categories. This was true even for vocational areas. For example, 29 percent of the grades for academic program students in business courses were A's, but only 18 percent were A's for vocational program students. The advantage in favor of academic over vocational program students, however, was less in vocational instructional areas than in academic areas. For example, the ratio of the percent of A's received by academic students to that by vocational program students was only 1.6:1 (29 vs. 18 percent) in business courses but 2.7:1 (24 vs. 9 percent) in English courses.

Technical Notes

High School and Beyond Transcript Survey

All statistics presented in this bulletin are weighted estimates of population values. They were derived from high school transcripts collected in fall 1982 for members of the HS&B sophomore cohort sample. Transcripts were received from 999 HS&B participant schools and 900 schools to which sampled students had transferred. Of 18,152 transcripts requested, 15,491 were obtained, a response rate of 88 percent. The course grade distributions are based on the grades reported for 378,352 courses taken by 12,664 students who had graduated from high school by fall 1982. Credits earned statistics exclude sophomores who graduated before spring 1982 and those who dropped out of school. However, the statistics do include courses where a pass-fail grading system was employed. Detailed information about the transcript file High School and Beyond Transcript Survey (1982) Data File Users Manual, NCES 84-205, July 1983.

Classification of courses

All courses in each transcript were assigned a 6-digit numerical code based on the course classification scheme described in A Classification of Secondary School Courses, NCES 82-242, July 1982. Only the first two digits of the code are used to define 32 instructional program categories. This bulletin shows course grade data for each of the 11 instructional categories in which the most credits were earned. The remaining 21 categories, which together account for only about 10 percent of all credits earned, were combined into a category called "other." (These 21 categories are identified in a footnote to table 1.)

Geographic classification of States

States and the District of Columbia were grouped geographically by the nine U.S. Census divisions.

New England:	Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut
Middle Atlantic:	New York, New Jersey, Pennsylvania
South Atlantic:	Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida
East South Central:	Kentucky, Tennessee, Alabama, Mississippi
West South Central:	Arkansas, Louisiana, Oklahoma, Texas
East North Central:	Ohio, Indiana, Illinois, Michigan, Wisconsin
West North Central:	Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas
Mountain:	Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada
Pacific:	Washington, Oregon, California, Alaska, Hawaii

Classification of students by homework category.

Students were classified into one of three categories based on their responses in the base-year and first follow-up surveys to the question, "Approximately what is the average amount of time you spend on homework a week?" Students who answered this question in both surveys were placed in the lowest effort category if they answered both times that they did no homework or spent less than 1 hour

a week. They were placed in the highest category if they indicated both times that they spent at least 5 hours per week on homework. Otherwise, they were put in the middle category (1 to 5 hours). Students who responded to the question in only one of the two surveys were classified by that response.

Classification of students by cognitive test performance group

Students were classified into one of three categories based on their composite test scores on the HS&B verbal and quantitative tests given in the base-year and first follow-up surveys. Students were placed in the lowest category if their composite scores fell in the lowest quartile in both surveys, and in the highest category if their scores were in the top quartile in both surveys. Otherwise they were placed in the middle category. Students who took the HS&B tests in only one of the two surveys were classified by their composite score for that survey.

Precision of estimates

Since the statistics presented are based on a sample, they may vary from the figures that would have been obtained if a complete survey, or census, had been taken using the same forms, instructions, and procedures. The difference between a statistic estimated from a sample and its corresponding census value occurs due to chance. Sampling or chance variation is measured by the standard error. The chance that a sample estimate will differ from the census value by more than one standard error is approximately 1 out of 3, and the chance it will differ by more than two standard errors only about 1 out of 20. The standard error does not take into account the effects of biases due to nonresponse, measurement error, processing error, or other systematic errors that would occur even in a complete survey.

The standard errors of the percentages in this bulletin are a function of the HS&B Transcript Survey sample design, the sample size (i.e., number of courses, which is a function of student subgroup size and instruction program category), and the percentage itself. Calculations for a subset of the statistics indicate that the standard errors of percent A's is less than 1.0 percentage point for every instruction program category for the total population and for the larger subgroups of students. For smaller subgroups, the standard error is less than 1.5 percentage points in most cases and less than 2.5 percentage points in nearly every case.